



# Emerald Ash Borer Detection Tree Survey

Wisconsin Department of Natural Resources



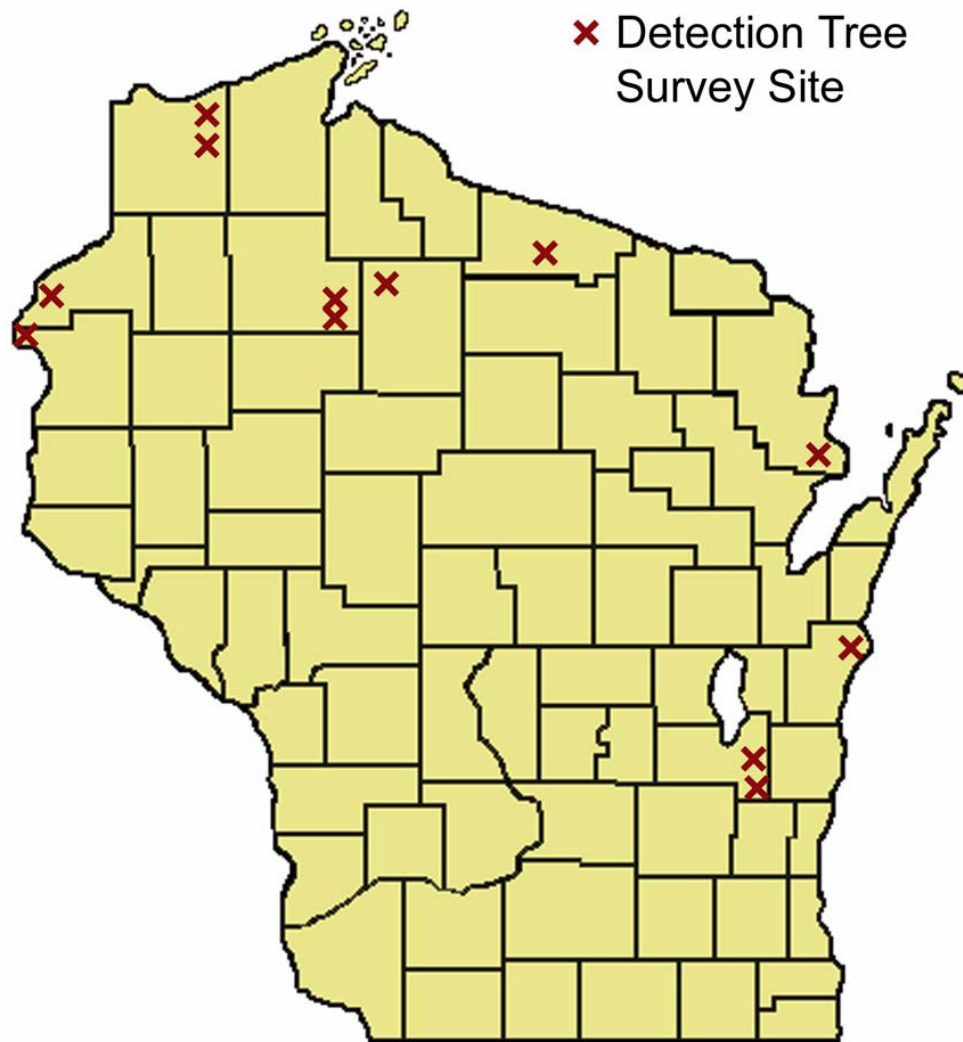
The Emerald Ash Borer's devastating impact on Michigan's ash resource prompted the installation of “trap trees” in Wisconsin State Forest Campgrounds in 2004.

The main objectives were:

- To detect emerald ash borer infestations
- To learn about native beetles attracted to stressed ash trees

# Emerald Ash Borer

## Detection Tree Survey Locations



- Research in MI has shown that Emerald Ash Borers are attracted to ash trees that have been girdled; this is the most current method for detecting this insect.
- 24 detection trees were set in 12 locations in Wisconsin (2 trees per site).
- Green and White Ash trees were girdled between May 11th - 21st.



## Detection Tree Set Up



- Ideal site selection for placing a detection tree would be in an open grown area such as this.
- To minimize the risk of damaging any property, trees for this survey were located 2x's the tree's height away from any camp site, trail, or road.



- Trees were girdled with a chain saw at waist height with two parallel cuts ~8-10" apart.
- The girdle cuts were ~1/2" deep going into ~ 3 years of growth rings in the sap wood.

# Detection Tree Set Up



- Bark was removed between the two girdle cuts by chopping through and peeling bark off the tree.



- Trees were then covered with plastic wrap and coated with a sticky tangle trap product.
- A sign was posted explaining the survey purpose and alerting people not to disturb the traps.



# Detection Tree Monitoring and Sample Processing

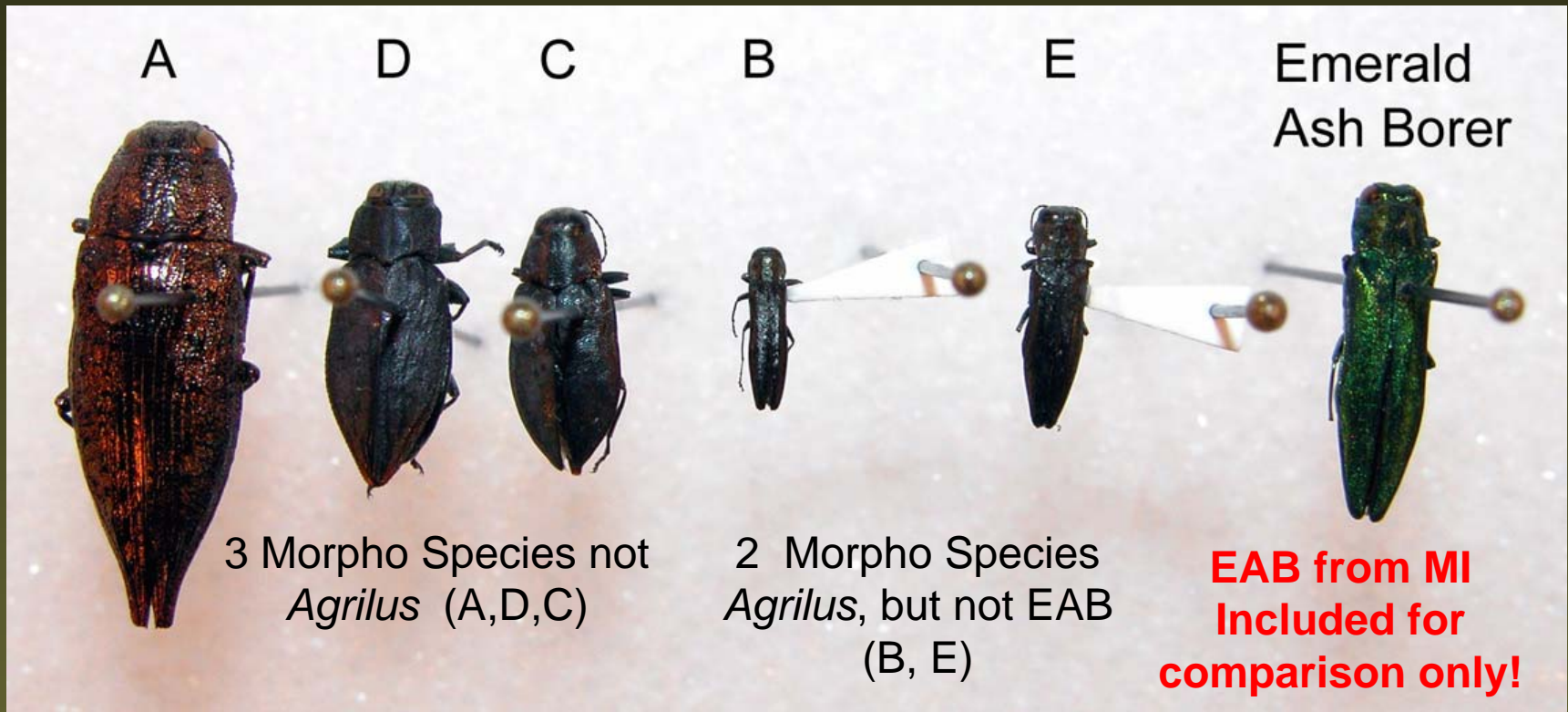


- Traps were sampled every other week from May 28th- end of September.
- Insects were collected in vials and processed in the lab.
- Wood-boring beetles were removed and mounted for identification.



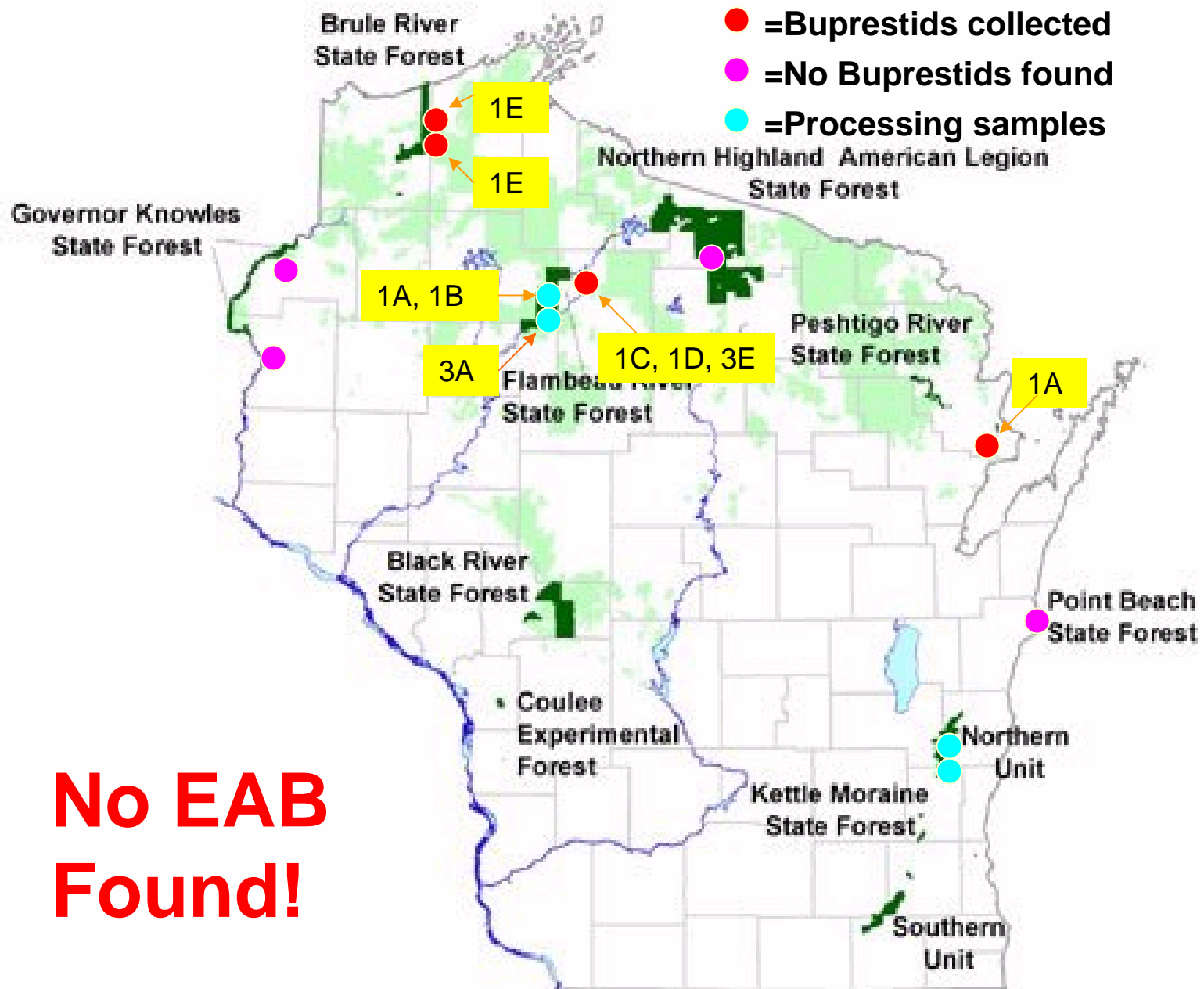
# Detection Tree Preliminary Results

**No Emerald Ash Borers Detected!**



- Emerald ash borer is in the taxonomic family Buprestidae, commonly known as metallic wood-boring beetles. Currently from our samples we have found a total of 14 buprestid beetles, none of which are emerald ash borer.
- These 14 beetles have been divided into 5 Morpho Species. Morpho Species are beetles with similar visible appearance (Coded A-E above). This coding is used only until taxonomic identifications are made.

# Location Where Buprestid Beetles Were Collected





## Similar Emerald Colored Insects Observed



- There were two insect species similar in color to emerald ash borer.
- Neither poses a health threat to ash trees.

Cuckoo wasp  
(*Chrysis* sp.)

Pale green weevil,  
(*Polydrusus* sp.)





## Step 2: Tree Removal and Debarking



- In the fall, one of the two detection trees from each site was removed and debarked to look for insect galleries and larvae.
- The remaining tree at each site will be removed and debarked in the fall of 2005.

# Tree Removal and Debarking



- Trees were sectioned into ~ 5' long logs, placed on portable saw horses, and shaved with a draw knife to remove the bark.
- Very little insect activity was detected in the debarked trees.



# Insects Collected Under the Bark

## Ash Bark Beetle (*Hylesinus* sp.)



- The two most common insects observed were the ash bark beetle and the ash cambium miner.



Possible over-wintering pits or tunnels.

## Ash Cambium Miner (*Phytobia* sp.)



Defects called pith ray flecks, worm tracks, or glassworms caused by ash cambium miner.



# Why Use Detection Trees?



- Detection trees are currently the best detection method available.
- In previous studies in Michigan, girdled detection trees caught 6-10x's more emerald ash borer beetles than non-girdled detection trees.
- Future research may come up with a better detection method.

# Limitations of Detection Trees

- Trap trees should only be considered in high risk sites such as near campgrounds, parks, and high use recreation areas where infested firewood may have been brought in.
- It takes a lot of time and effort to set up, monitor, and debark detection trees. Although labor intensive, debarking may be required to detect low level infestations of emerald ash borer.
- Best results for detecting beetles are in open canopy areas versus closed canopy or forest edges. Finding such open locations that do not pose a hazard tree concern may be difficult.
- It is a destructive survey that kills the detection tree.





All though no emerald ash borers were detected during this survey, the beetle may already be here



**Please report any possible sightings!**

**1-800-462-2803**